

SEVERAL NEW SPECIES OF
NORTH AMERICAN ORTHOPTERA

H. F. STROHECKER

University of Miami

The specimens on which the following descriptions are based have come to me in the collections of the California Insect Survey or from Mr. Jacques Helfer of Mendocino, California. Included is the description of a grasshopper which I collected many years ago in northwestern Florida.

Mr. J. A. G. Rehn of the Academy of Natural Sciences in Philadelphia, Dr. W. L. Brown of the Museum of Comparative Zoology, and Dr. Ashley Gurney of the U.S. National Museum have lent specimens of several little known species of Acrididae useful in the study. Dr. Gurney has also supplied drawings of the aedeagus of the unique type of *Melanoplus sonomaensis* Caudell.

GRYLLACRIDIDAE

Daihiniodes valgum Strohecker, new species

(Fig. 1)

This insect is referred to *Daihiniodes* largely on the basis of its tarsomeres, three in the front tarsus, four in the middle and hind tarsi, but it seems to combine the features of several raphidophorine genera as defined by Hubbell in 1936. The second and third articles of the hind tarsus are heart-shaped and carinate beneath as in *Rhachocnemis*, rather than distinctly spinose, while the spurs of the hind tibiae are elongate and crowded distad as in *Ammobaenetes*. The membranous area on the lower surface of the last joint of the maxillary palp extends two-thirds the length of the joint.

Head as in *D. hastiferum* (Rehn), fastigium flat and perpendicular. *Legs*: front tibia with four stout spurs on ventro-caudal margin and four slender spurs on ventro-cephalic margin (excluding terminal calcar). Front femur with a slender genicular spur on cephalic face. Middle femur with genicular spur on both faces. Middle tibia with four spines on each dorsal edge and two spurs on each ventral edge. Hind femur with many denticles on dorsal surface, its ventro-cephalic carina with 21 small spines distributed along its entire length. Hind tibia strongly bowed, each dorsal edge with eight spurs (including the dorsally directed calcar) and a number of denticles. The distal six spurs elongate, inner series longer and crowded distad forming a "sand-basket." *Subgenital plate* membranous, prolonged into two tapering lobes. The color of the insect is a rather uniform pale brown. Length of body 20 mm.: of pronotum 5.1 mm.; of front femur 6.9 mm.; of hind femur 16 mm.

Holotype male, PALM SPRINGS, RIVERSIDE COUNTY, CALIFORNIA,

June 1, 1949 (L. M. Smith), deposited at the California Academy of Sciences, San Francisco.

ACRIDIDAE

Trimerotropis helferi Strohecker, new species

(Fig. 2)

Male.—Form short and robust for the genus, in general proportions resembling *Microtes*. Femora, tibiae, coxae and adjacent areas of sterna and pleura clothed with long, white hairs, much as in *T. (olim Circotettix) maculata* (Scudder) but less dense. *Color* light gray and tan, thickly maculate and punctate with black, maculae of tegmina hardly aggregated into cross-bands. Wing disc hyaline or very feebly tinged with yellow, the black band narrow and interrupted in axillary region, reaching hind margin but little extended along it. Costal spur short, reaching less than halfway to base of wing. *Legs*: Front and middle femora and tibiae annulate with black. Hind femur with fuscous mottling in basal half of external face, and a fairly definite dark band at apical third, upper and lower edges of the external face and upper and lower flanges minutely, seriatly maculate with black. Lower sulcus pale with a narrow, dark band before apex. Hind tibiae brownish yellow, darker apically, knees dusky. *Head* large, in frontal view wider across cheeks than across eyes (8:7), frontal costa deeply sulcate, its carinae continued with only a slight undulation at foveolae as the margins of the fastigium, which is rather deeply impressed and as wide as dorsal diameter of eye. Median carina of pronotum subcristate on prozona, weakly notched by first sulcus, principal sulcus deep. Lateral carinae feebly indicated on anterior lobe of prozona, definite but rounded on metazona. Hind margin of pronotum forming an angle slightly greater than 90°. Lateral lobes with lower hind angle broadly rounded. Length of body 19 mm.; of pronotum 3.7 mm.; of tegmen 18 mm.; of hind femur 10.3 mm.

Female.—Larger and stouter than the male. Coloration similar but tegminal maculae aggregated into a diffuse basal area and a cross-band at mid-length. Fastigium shallower and broader than in male. Length of body 28 mm.; of pronotum 5.3 mm.; of tegmen 24 mm.; of hind femur 14 mm.

Holotype male and allotype female, CLEONE, MENDOCINO COUNTY, CALIFORNIA, August 6, 1958 (J. R. Helfer), deposited in the U.S. National Museum (No. 64567). Paratypes: 47 males and 48 females with the same data as the holotype, and five males and two females collected by Helfer at Cleone on August 8, 1958.

Additional specimens at hand were taken by Helfer near Petrolia, Humboldt County on July 17, 1958, at Arcata and Mad R. Mts., July 1919 by E. C. Van Dyke, at Eureka, June 24, 1924 by J. M. Aldrich, June 11, 1935 by E. O. Essig. All these localities are in Humboldt County. A series of four males

and one female taken by E. G. Linsley, July 4, 1956, at Grover City, San Luis Obispo County, are remarkably short and stout with the tegmina extending only to the tips of the femora. The body length of these males is 14–14.5 mm. and the tegmina measure only 12.5–13.5 mm. Corresponding measurements for the female are 21 and 18 mm.

I have considered the possibility that the name *Trimerotropis pilosa* McNeill might be applicable to this species, but that name was probably based on small specimens of *T. pallidipennis* (Burmeister). In general appearance *helferi* resembles a small specimen of *maculata* but its closest relationship is probably with *T. arenacea* Rehn, from which it differs in stouter form, broader head, color of hind tibia, and hairiness.

Dr. Gurney, on learning of my study of this species, generously sent to me the entire series submitted to the National Museum by Mr. Helfer as well as the biological notes of the collector. Apparently *T. helferi* occupies a habitat niche similar to that of *T. maritima* (Harris) and *T. acta* Rehn and Hebard on the Atlantic coast, *i.e.*, it is an occupant of the first line of dunes. Plants with which the insect was associated are *Convolvulus soldanella* L., *Franseria chamissonis* Less., and *Artemisia pycnocephala* DC. Determinations of these were made by Dr. S. F. Blake of the Plant Industry Station at Beltsville, and communicated to me by Dr. Gurney.

Melanoplus fricki Strohecker, new species

(Fig. 3)

Resembles *M. hesperus* Hebard in size and coloration. Tegmina apically rounded. Cercus similar to that of *hesperus* but wider at base. Suranale with a transverse ridge on each side at mid-length. The most distinctive features are found in the structure of the phallus. Length of body 15.2 mm.; of pronotum 3.5 mm.; of hind femur 9 mm.

Holotype male, KING'S MOUNTAIN, SAN MATEO COUNTY, CALIFORNIA, September 28, 1941 (Kenneth Frick), deposited in the California Academy of Sciences. Allotype female with data as for holotype. It is doubtful that features adequate for differentiation can be found in the females of this group of *Melanoplus*. Paratypes: two males and two females with the same data as the holo- and allotype.

Melanoplus muricolor Strohecker, new species

(Fig. 4)

So similar to *M. nanus* Scudder that a general description is not necessary.

Tegmina three-quarters as long as pronotum, narrowly separated, apex evenly rounded. Arms of furcula attenuate, divergent. Lateral margins of suranale reflexed, forming a rather deep trough, median ridges laterally tuberculate at about mid-length of plate. Cercus similar to that of *nanus* but slenderer. Length of body 14 mm.; of pronotum 3.2 mm.; of hind femur 8.5 mm.

Holotype male, SANTA CLARA COUNTY, CALIFORNIA, September 11, 1941 (Kenneth Frick), deposited in the California Academy of Sciences. Allotype female with data as for holotype. This specimen, associated with the male, is designated the allotype, but I am unable to say in what ways it differs from the female of some other species of the *nanus* group.

In the figure of the phallus, the right side is represented as it appears in the dried state.

***Melanoplus gurneyi* Strohecker, new species**

(Fig. 5)

A small grasshopper of the *puer* (Scudder) (s.s.) group. In Hubbell's key (1932, *Miscell. Pub.* 23, Univ. Mich. Museum Zoology, p. 17) it runs out to *apalachicolae* Hubbell, which it closely resembles, although smaller than the average size of that species, and with the cerci symmetrically styliform rather than dorsally excised. The edges of the suranale are not undulate over the cercal bases and the arms of the furcula are brief, rounded lobes, shorter than the tenth tergite. The phallic structure is distinctive. Length of body 12.8 mm.; of pronotum 2.6 mm.; of hind femur 8 mm.

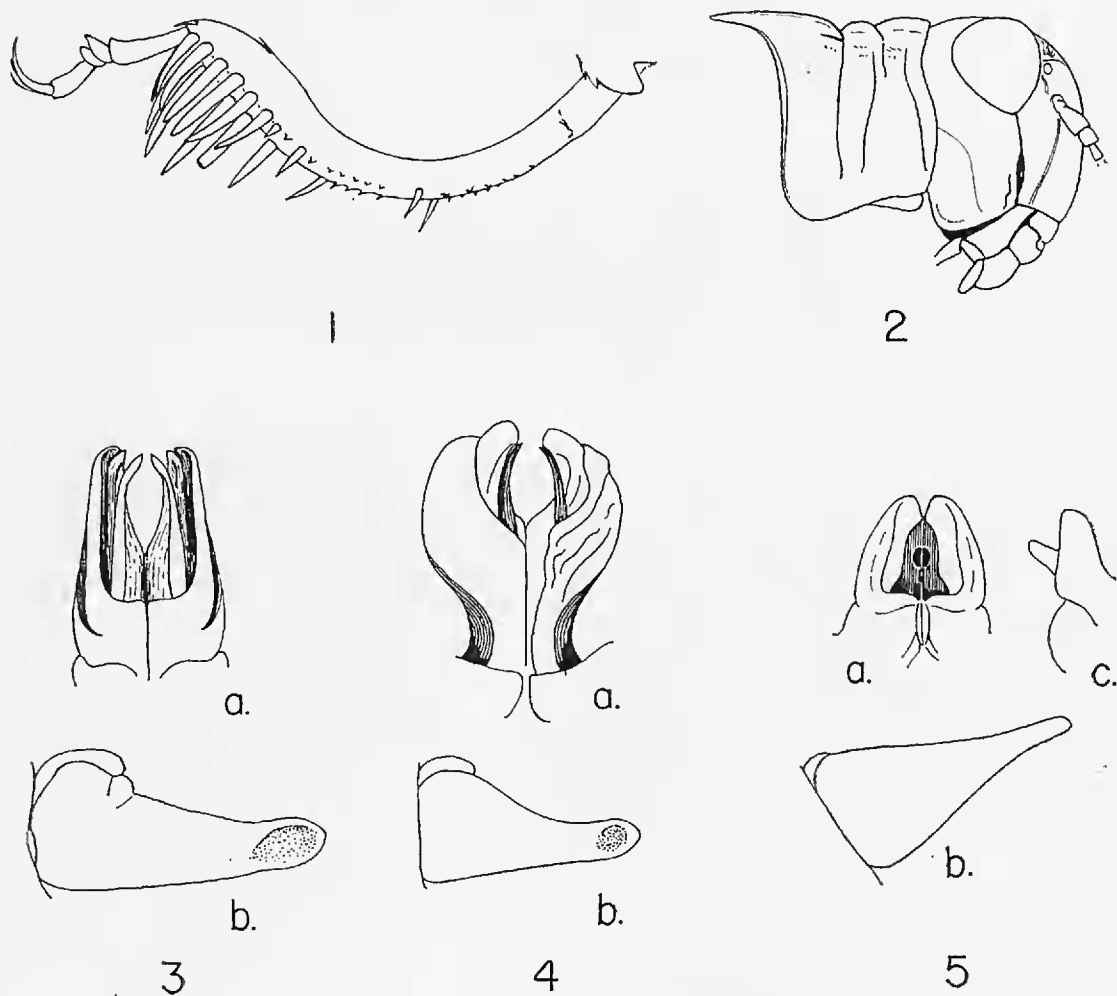
Holotype male, BEACON BEACH (now Tyndall Field), BAY COUNTY, FLORIDA, August 6, 1940 (author's collection).

Allotype female with same data as the holotype and resembling the female of *apalachicolae* to the point of identity. Paratypes: 20 males and 16 females taken with the types. The habitat of the species is a xeric sand area with *Ceratiola* the most abundant plant, this associated with dwarf oak and basil-weed. The clumps of basil-weed were occupied by *Hesperotettix gemmicula* Hebard.

Seven males collected at Inlet Beach differ from the topotypes in the greater development of the aedeagal valves, which are strongly protuberant when viewed from the side. The cerci are also proportionately shorter in the Inlet Beach specimens, but these structures show variation in length in both series.

The drawings of the phallic structure were made from potash-

glycerol preparations except the right side of figure 4a, which is drawn from the dried state.



EXPLANATION OF FIGURES

Fig. 1, *Daihiniodes valgum* Strohecker, left hind tibia of male. Fig. 2, *Trimerotropis helferi* Strohecker, head and pronotum of male. Fig. 3, *Melanoplus fricki* Strohecker, male; a. caudal view of phallus; b. left cercus. Fig. 4, *Melanoplus muricolor* Strohecker, male; a. caudal view of phallus; b. left cercus. Fig. 5, *Melanoplus gurneyi* Strohecker, male; a. caudal view of phallus; b. left cercus; c. lateral view of phallus of Inlet Beach male.

ERRATA

Abbott, C. H., 1959. Pan-Pac. Ent. 35:84; line 32, read *Calipatria* instead of *Carpinteria*. The butterflies were moving out of Sonora in a west-northwest direction in the Imperial Valley.

Schuster, R. O., G. A. Marsh and O. Park, 1959. Pan-Pac. Ent. 35:117; line 11 read Dr. John R. Bowman instead of Dr. Robert Bowman.